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THE TREATMENT OF THERMAL BURNS WITH THE
ANTIBIOTIC POWDER "NEBISER"

By Ya. S. Valigura

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THE TREATMENT OF THERMAL BURNS WITH THE
ANTIBIOTIC POWDER, "NEBISEP" 1

Following is the translation of an article by
Docent Ya. S. Valigura entitled "Lecheniye
Termicheskikh Ozhogov Antibiotikovoy Pudroy
'Nebise.p'" (English version above) in Khirurgiya
(Surgery), Vol. 36, No. 5, 1960, pages 81-84.7

From the hospital (Chief Surgeon Ya. S. Valigura,
Director B. N. Kazakov) of the Soviet Red Cross in
the City of Addis-Ababa, Ethiopia.

There exist many methods of treating burns. At their
basis lies the struggle against shock, pain, the loss of
plasma and proteins, intoxication of the organism, prophylaxis
of secondary infection and late complications (keloids and
contractures), and also symptomatic and general reinforcing
treatment, full value feeding and care.

In spite of the great amount of experience of surgeons
of all countries and a considerable literature, up to the
present time many questions of the burn problem have not been
resolved and there is still no single opinion concerning the
maximally rational method of treatment. The latter circum-
stance serves as the basis for the publication of further
researches and observations.

In the present work we would like to communicate our
own experience in the treatment of thermal burns with the
use of the new medicinal preparation, "Nebise.p."

We observed 186 patients, of whom 41 were treated in
the hospital and 145 ambulatorily. The distribution of
patients by sex, age, and degree of the burn is presented
in Table 1.

In 23 individuals (12.37%) the area of the burn ex-
ceeded 10 percent of the body surface according to B. N.
Postnikov, and in three of them it reached 30 percent. All

Delivered at the session of the Medical Association of
Ethiopia 24 November 1959.

Table 1

Age of the patients	Total Patients	Of which the following numbers were		Degree of burn		
		Men	Women	1	11	111
up to 2 years	35	20	15	-	35	-
From 2 to 3 years	15	10	5	-	15	-
From 3 to 5 years	12	5	7	-	12	-
From 6 to 10 years	14	8	6	-	14	-
From 11 to 15 years	9	6	3	-	9	-
From 16 to 20 years	17	13	4	-	17	-
From 21 years to 30 years	43	33	10	1	41	1
From 31 years to 40 years	32	26	6	3	29	-
From 41 years to 50 years	9	9	-	-	9	-
TOTAL	186	130	56	4	181	1
%	100	70	30	2.15	97.31	0.54

of them, and also 18 other patients with a burn area less than 10 percent were treated in the hospital.

Of the number of patients, 60 percent were admitted in the first six hours, the others at various periods, right up to 60 days after receiving the burn. Among them 21 persons (11.3%) were admitted with complications: with shock - three patients, with infection of the burns - 17, and with painful contracture -- one patient.

In 56 percent of the patients the cause of the burn was boiling water or hot food, in 27.5 percent -- the flame of campfire or of burning gasoline, and in 16.5 percent -- other causes.

The extremities, particularly the upper extremities (44.7%) were most often burned.

We used the new "Nebisep" preparation for treating the burns.

"Nebisep" (Nebisep preparations) consist of antibiotics of the bacitracin and neomycin group and is intended for local application. Bacitracin acts chiefly on the Gram-positive, and neomycin, on the Gram-negative microorganisms. The combination of these two antibiotics makes it possible to use "Nebisep" widely. Bacitracin and neomycin only rarely evoke allergic reactions. The "Nebisep" preparation

is issued by the pharmaceutical industry of Holland in the form of an ointment, ocular ointment, drops for the nose and eyes. "Nebisep" powder which is being issued in soft plastic vials 5 and 25 g in capacity, serving simultaneously as atomizers when their walls are compressed, is receiving the maximally widespread use in surgery. One g of the powder contains 250 units of bacitracin and 5 mg of neomycin.

The method of treating which has been used by us consists in the following. All the patients, admitted without signs of shock, were immediately taken to the bandaging room and the burned surface was immediately carefully treated (after the administration of antitetanus serum and morphine or pantopon). To eliminate the pain stimuli, arising at the time of treatment, the burned surfaces were covered with gauze napkins (in two to three layers), abundantly impregnated with pure alcohol. The treatment was conducted after approximately three to five minutes when analgesia has appeared. The burned areas and the healthy skin surrounding them was carefully washed off with gauze balls, impregnated with an 0.5% solution of ammonium hydroxide. When the skin is greatly contaminated, it was preliminarily washed off with benzene. All blisters were opened and completely removed. The burned surface was washed thoroughly with an 0.5% solution of ammonium hydroxide, dried with sterile napkins, then thoroughly washed with a 3% solution of hydrogen peroxide and dried again. After this the surface of the burn was moistened with a 5% solution of potassium permanganate and immediately covered with a layer of "Nebisep" antibiotic powder no less than two to three mm in thickness. It was then covered with a continuous gauze-wadding bandage.

At the beginning of our work we covered the burned surface with "Nebisep" alone, without treatment with the solution of potassium permanganate; having used the latter, we obtained an acceleration of healing. The patients who were admitted in a state of shock (three persons), were subjected to treatment after they had been brought out of shock (according to the generally accepted method). In comparison with treatment by potassium permanganate solution alone or with penicillin ointment alone (control), the new method, as it turned out, shortens the period of treatment by almost two times (Table 2).

Eight patients with burns of from 20 to 30 percent of the body surface, who were treated in the hospital (on an average for 38 bed-days) are not included in Table 2. They were all admitted with infected wounds 20 to 60 days after the burn trauma. The other 33 patients, who were treated in the hospital, were not different in any way in severity of the burn, its area, the method and periods of treatment from

Table 2

Comparative Results of Treatment of
Burns (the Author's own data)

Method of treatment	Number of patients	in %	Average period of treatment (in days)
5% solution of potassium permanganate	9	5.0	14
Penicillin treatment	24	13.5	16
"Nebisep" (antibiotic powder)	24	13.5	10
5% potassium permanganate and "Nebisep"	121	68.0	8
TOTAL.....	178	100	

the ambulatory patients and consequently are included in the single general table.

After the primary or overdue treatment of the burns the patients received general reinforcing and symptomatic treatment. Antibiotics were used as an exception and only for patients who were admitted in very late periods after receiving the burns, with pronounced infection of the wound. Such patients amounted to 17 (9.1%).

As our experience has shown, the careful treatment of the burned areas of the skin and subsequent barring of secondary infection via the use of irremovable bandages has proved to be of chief importance in the treatment of burns. The first change of the bandage, as a rule, is performed by us no earlier than after seven days. At this time, with rare exceptions, burns of the second degree are completely healed. This has particularly great practical value under conditions of the high-mountain hot climate of Africa (Ethiopia) with a considerably lowered content of oxygen in the atmosphere of the air, where processes of regeneration of all the tissues are very slow. The periods of healing have proved to be no higher, and even somewhat lower than those under the conditions of the European climate.

"Nebisep" antibiotic powder together with fibrin, when it gets into the wound, forms a soft aseptic crust, which strongly protects the burned surface from secondary infection, prevents the loss of plasma and proteins and rapidly terminates the pain. All this improves the general state of the patients. In the case of burn of the surface of the joints we cover it over at the time of the first bandaging with light plaster of Paris languettes /languette - removable bandage made out of plaster of Paris, used in fusing broken bones_7.

The closed method of treating with a non-replaceable bandage which we have proposed and successfully used, is indispensable under local conditions, particularly for ambulatory patients. It spares the epidermis and the young granulations, facilitates rapid epithelization, and with the formation of fine and tender scars creates the conditions for the use of early skin plastic surgery. Our method is maximally rational for the treatment of burns in children. We have not observed a side effect of the "Nebisep" preparations.

Conclusions

1. The method of treatment of thermal burns with "Nebisep" antibiotic powder which is described is very simple, inexpensive, and accessible for use under any conditions, particularly for the treatment of victims who are found far from settled points (an expedition, etc.).

2. "Nebisep" antibiotic powder together with the fibrin which gets into the burn wound forms a soft aseptic crust which averts the penetration of infection inside and creates favorable conditions for rapid epithelization, which significantly shortens the period of treatment and gives an excellent functional result.

3. The method of treatment of burns which is described significantly simplifies the care for the patients, curtails the loss of plasma, proteins, and dehydration, and preserves the protective forces of the organism of the patient.

4. The method of an unchangeable bandage which we used delivers the patients from frequent and painful bandagings and appears to be the method of choice in ambulatory practice, particularly for the treatment of children.

5. The given method of treatment of burns has proved to be maximally effective and simple under conditions of insufficient sanitary literacy and personal hygiene of the population.

6. The closed method of treatment of burns of the second degree with "Nebisep" antibiotic powder positively

recommends itself under conditions of the high-mountain hot climate of Ethiopia with a lowered content of oxygen in the atmospheric air and can be recommended for use under similar climatic conditions of our countries.

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